HD Color Video Camera
User Manual

Preface:

Thanks for using our HD color video conference camera.

This manual introduces the function installation and operation of the HD camera. Prior to installation and usage, please read the manual thoroughly.

Warning

This product can be only used in specified range in order to avoid any damage or danger.

Don’t expose the camera to rain or moisture place.

Don’t remove the cover to reduce the risk of electric shock. Refer servicing to qualified personnel.

Never operate the camera under unqualified temperature, humidity and power supply.

Only use the replacement parts recommended by us.

Please use the soft cloth to clean the camera. Use neuter cleanser if bad smeared .No uses the strong or cleanser avoiding scuffing.

Be careful or moving; never press the drive parts heavily avoiding camera trouble.

Notes

Electromagnetic fields at the specific frequency may affect the image quality.

【Contents】

Notes

Electric Safety

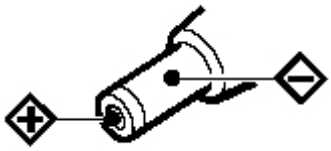
Installation and operation must accord with electric safety standard

Caution to transport

Avoid stress, vibration and soakage in transport, storage and installation.

Polarity of power supply

The power supply of the product is +12V, the max electrical current is 2.5A .polarity of the power supply drawing.



Careful of installation

Never move the camera by seizing the camera head. Don't rotate camera head by hand; otherwise, mechanical trouble will occur.

This series item must put on the smooth desk or platform, and it can not be installed slantways.

If the camera is installed on TV or computer, the base can be fixed by three double-sided adhesive trays.

Don't apply in corrosive liquid, gas or solid environment to avoid the cover which is made up of organic material.

To make sure no obstacle in rotation range.

Never power on before installation is not completed.

Don't dispatch discretionarily

We are not responsible for any unauthorized modification or dismantling.

Attention: Electromagnetic filed under certain rate may affect camera image!

Supplied Accessories

When you unpack, check that all the supplied accessories are included:

Camera ……1

Power adaptor ……1

Power cable……1

RS232 cable……1

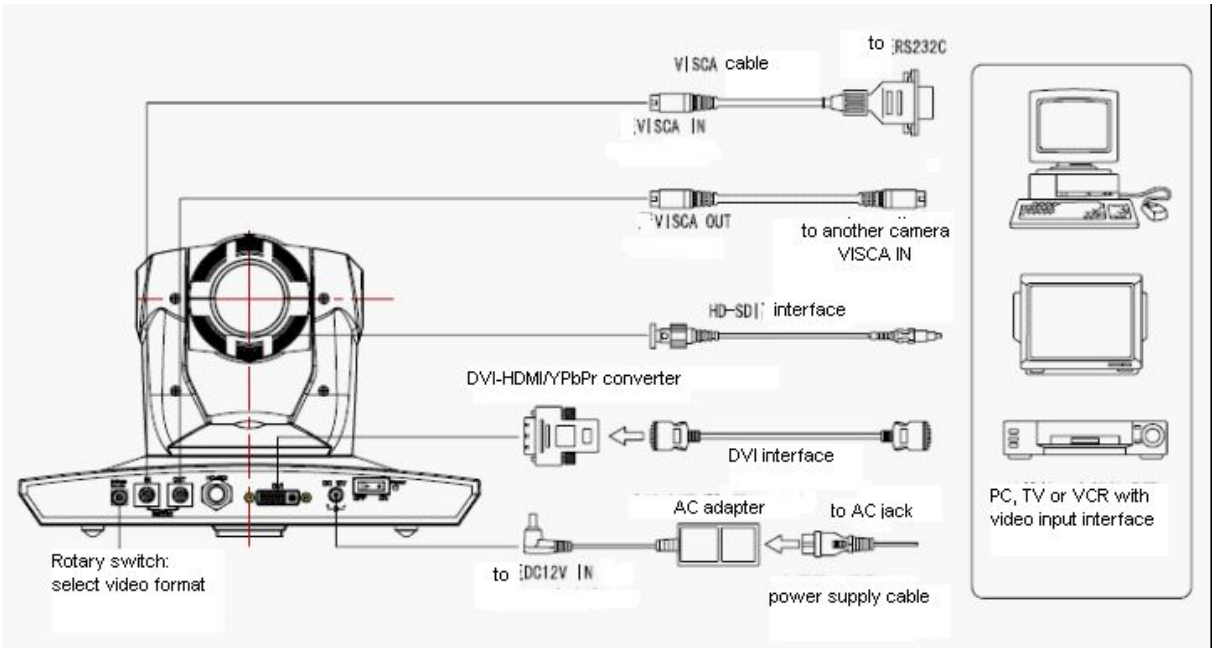
Remote controller……1

User manual ……1

Double-side glue shim ……4

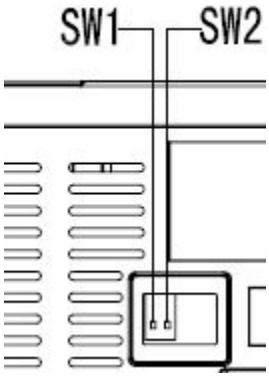
Fast Installation

1. Please check the connection before turn on.



2. Bottom Dial Switch Setting

Two DIP switch set to be OFF, which is normal working mode



	SW2-2	SW2-1	Explanation
1	ON	OFF	Undefined
2	OFF	OFF	Updating mode
3	OFF	ON	Debugging mode
4	ON	ON	Working mode

3. The Rotary Switch Setting

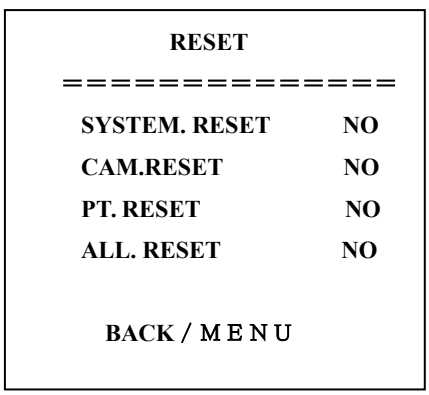
The video format setting selections

Switch Setting	
0	1080P60
1	1080P50
2	1080I60
3	1080I50
4	720P60
5	720P50
6	1080P30
7	1080P25
8	--------
9	--------
A	--------
B	--------
C	--------
D	--------
E	--------
F	Display as the video format set by the menu

Note: Please restart the camera after shift the video format

4. When Power supply switch is "on", the indicator light is open (red color)

5. Camera initializes after powered on, the indicating lights on front panel will start flicker by the order of Red - Yellow- Green : Rotate Pan to the left limit, rotate tilt to the down limit; Then rotate to the middle of both pan and tilt, the motor stops. Camera lens initializes until the indicating light become green. Initialization finishes. (Note: If the users do not operate the camera in 12 seconds, the camera will move to the preset position No.0 or No.1 if saved 0 or 1 preset)



6. Restore default setting: enter into the OSD menu by press the menu key of remote controller, select 【**Restore Default**】, moving the left/right key to press 【**Yes**】，then confirm by 【**HOME**】key .

7. Camera Standby: Press the 【**Standby**】 key on the remoter, camera pan tilt will rotate to the down limit, and then rotate to the right limit to be standby. The working indicates light turn off and flick as red light once every 20 seconds. If need to wake up the camera, user need to press again the 【**Standby**】 key and camera will start and run self-checking again.

Camera highlights

1. Camera support both Chinese and English menu which is convenient for using.

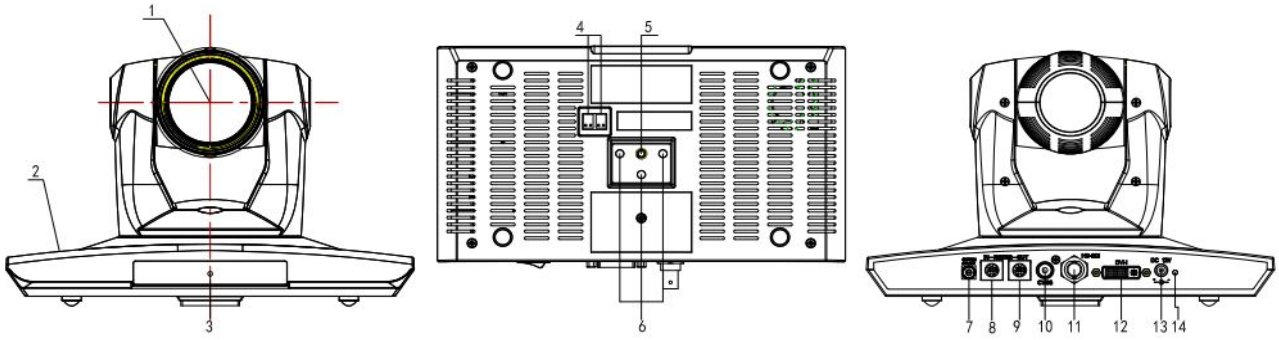
2. Multiple and completed HD interfaces; Provide the DVI interface (including YPbPr, HDMI and VGA signal) and HD-SDI interface.

3. IR remote controller signal transparent transmission function: camera can receive both its own remote controller signal and the controller signal of terminal equipment by converting to serial signal then executing. Thus, the terminals can be working in the background.

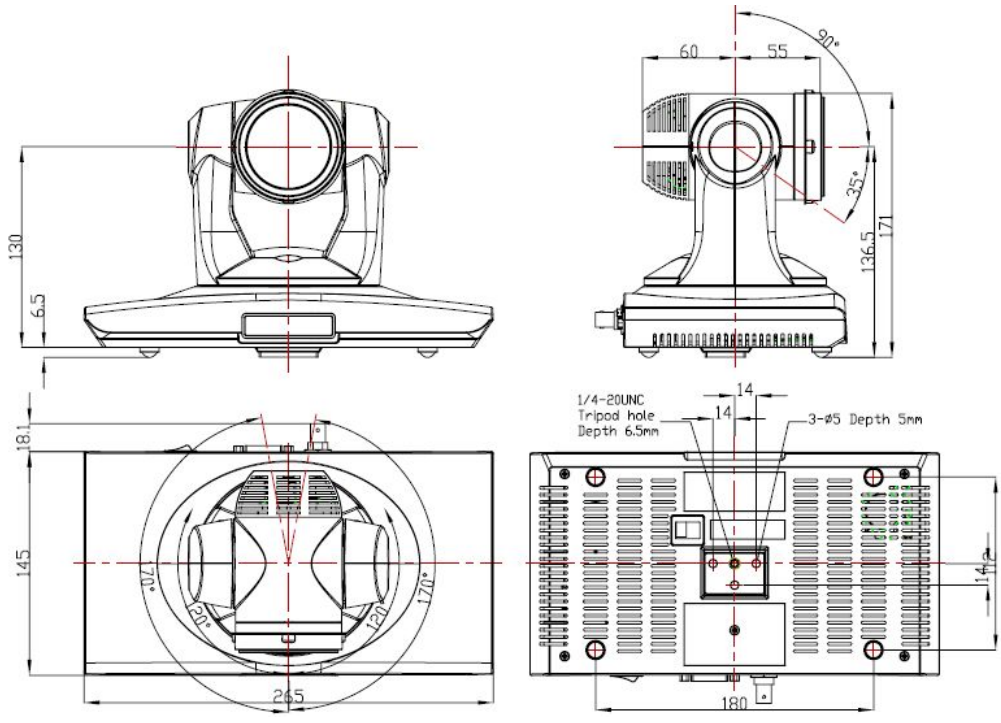
Camera Specifications:

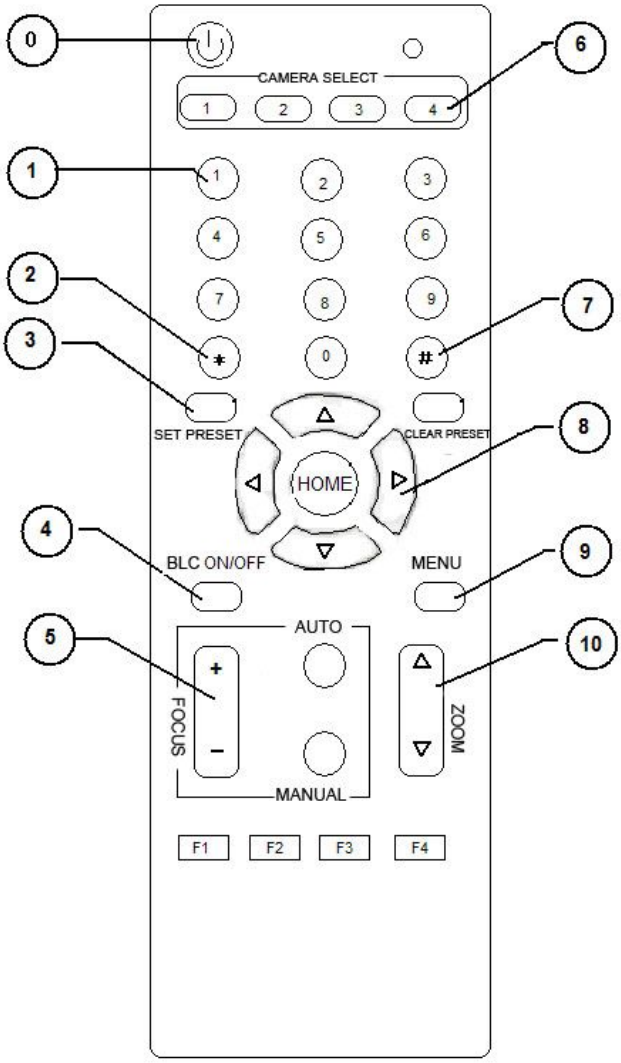
1. Video format : 1080P60/50, 1080P30/25, 1080I60/50, 720P60/50 (S)
   1080P30/25, 1080I60/50, 720P60/50 (M)
   720P60/50 (C)
2. Output Interface : DVI（YPbPr, HDMI, VGA）, HD-SDI, CVBS(optional)
3. Image Sensor: 1/2.8 type CMOS, 2.07million effective pixels and 2.74 million total pixels.
4. Lens: 4.7mm ~ 84.6 mm，F1.6 - 2.8, angle of view : 55.2° - 3.2° .
5. The Rotation : ±170° for pan rotation and -30° ~ +90° for tilt rotation
   Support in-ceiling installation.
6. The Control speed: 0.1° -180° /sec for pan rotation, 0.1° -80° /sec for tilt rotation .
7. Preset position No.: 10 preset position with precision error less than 0.2° .
   And it can reach to 128 presets position by COM command.
8. Support auto/manual/indoor/outdoor/auto key-control/auto-tracking white balance;
   Auto/manual exposure (Iris, Shuttle) and auto/manual/One-Push focus.
9. Support WDR technical: performance ≥100dB, anti-flicker.
10. Control Signal interface: 8 pin mini DIN,RS232，VISCA/Pelco-D/Pelco-P
11. Power interface: HEC3800 power jack, Power supply adapter: DC12V/2.5A.
12. Maximum consumption 12W
13. Working temperature: -5℃ to +45℃
14. Storage temperature:-20℃ to +60℃
15. Weight 1.3kg

Camera Interface Explanation



1 - Camera lens
2 - Camera base
3 - Working status indicator light (red)
4 - Bottom dial Switch
5 - Tripod screw hole
6 - Installation Orientation Hole
7 - Rotary Switch: video format optional
8 - RS232 controller serial interface (input)
9 - RS232 controller serial interface (output)
10 - CVBS interface (optional)
11 - HD-SDI interface
12 - DVI-I interface（including YPbPr, HDMI and VGA interface）
13 - DC12V Input Power Supply Jack
14 - Power indicator light (red)





Remote Controller:

Definition of IR controller

0、Standby key

After press the standby key, the camera will step into standby mode. Press again, the camera will open again. (Note: Standby mode power consumption is about half of the normal mode)

1、Number key

Setting or Running presets

2、* key

Key combination use

3. Set preset key:

Set preset：Preserve a preset

Set preset key + 0-9 number key： Set a preset corresponding to the number.

Clear preset key：

Clear preset key + 0-9 number key: Clear the relative preset

or：＃+＃+＃：Clear all the presets

4、BLC control key

Black Light compensation ON/ OFF：Not supported by the camera

5、Focus control key

【Auto Focus】Enter into auto focus model

Press **【Manual Focus】**key to switch to manual focus, the focus can be adjusted by pressing **【Focus+】**or**【Focus-】**

6、Camera address selection

Camera address selection (Note: current version only supports No.1 address)

7、 # key

Key combination use

8、pan/tilt control key

Press ▲key ： Up

Press ▼key ： Down

Press ◀key ： Left

Press ▶key： Right

“**HOME**” key: Return to the middle position

9、Menu setting

Open or close the OSD menu

10、Zoom Control key

zoom＋：lens near

zoom－：lens far

11、Controlling camera address selection

【*】+【＃】+【F1】：the 1st camera address

【*】+【＃】+【F2】：the 2nd camera address

【*】+【＃】+【F3】：the 3rd camera address

【*】+【＃】+【F4】：the 4th camera address

IR Remote Control

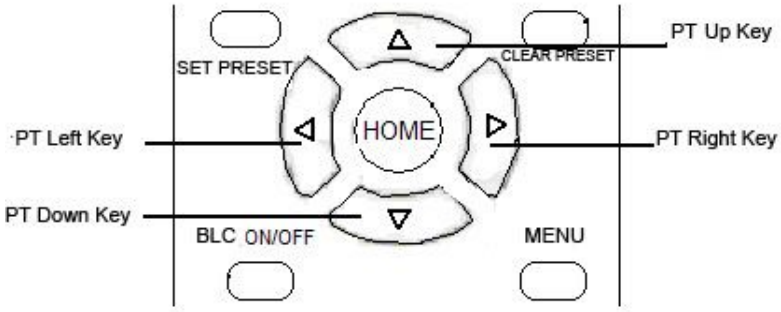
When the camera is working, users can control the pan/tilt/zoom, setting and taking preset positions via remote controller.

Instruction:

1. In this instruction, “press the key” means a click other than a long-press, and a special note will be given if a long-press for more than one second is required.

2. When a key-combination is required, do it in sequence. For example, “+#+F1”means press“*”first and then press“#” and press“F1”at last.

1. Pan/Tilt Control



Up: press ▲

Down: press ▼

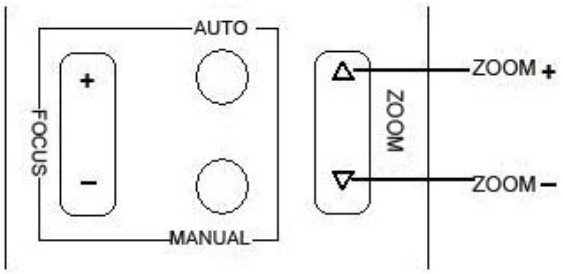
Left: press ◄

Right: press ►

Back to middle position：press“**HOME**”

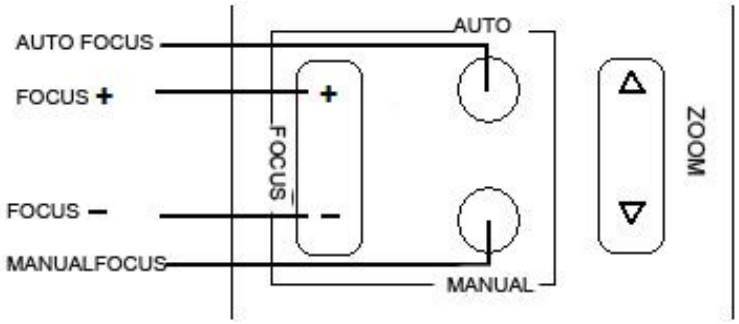
Press and hold the up/down/left/right key, the pan/tilt will keep running, from slow to fast, until it run to the endpoint; The pan/tilt running stops as soon as the key is released.

2. Zoom Operation



ZOOM OUT: press “ZOOM ▲“key
ZOOM IN: press “ZOOM ▼” key
Press and hold the key, the camera will keep zooming in or zooming out and stops as soon as the key is released.

3、Focus Control

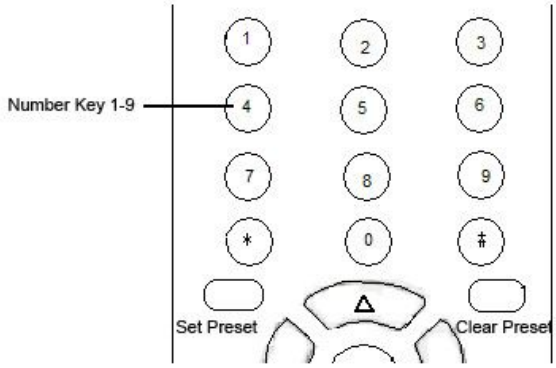


Focus (far)： Press”focus+” key (only work in manual focus mode)
Focus (near)： Press “focus-“key (only work in manual focus mode)
Auto Focus: Press "auto"
Manual Focus: Press "manual"
Press and hold the key, the action of focus continues and stops as soon as the key is released.

4、BLC Setting

BLC ON / OFF: Not supported

5、Presets setting

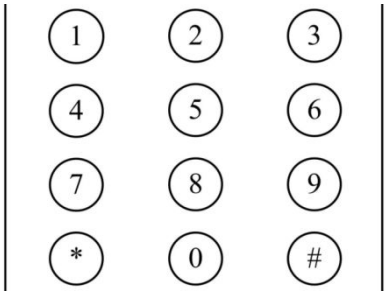


1、Preset setting : To set a preset position, the users should press the “SET PRESET” key first and then press the number key 0-9 to set a relative preset, 10 preset positions in total are available.

2、 Preset clearing : to clear a preset position, the user can press the “CLEAR PRESET” key first and then press the number key 0-9 to clear the relative preset;

Note: press the“#” key three times continually to cancel all the presets.

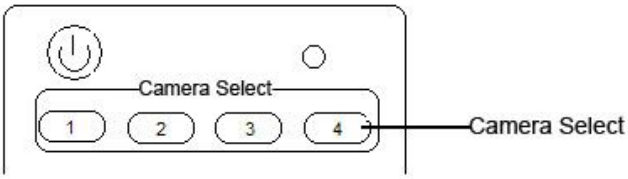
6、Preset locating



Press a number key 0-9 directly to run a relative preset.

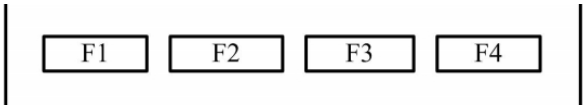
Note: Action in vain if a relative preset position is not exists.

7、Camera Address Setting



Select the camera you want to control by press the number key

8、Camera Remote Controller Address Setting



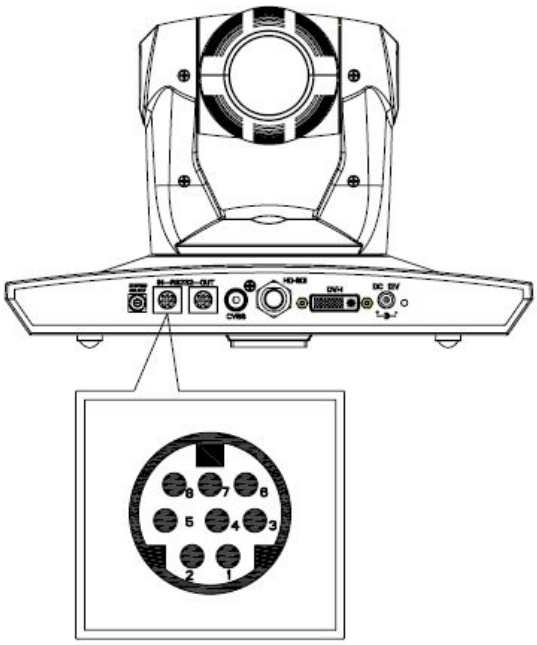
【*】+【＃】+【F1】: Address No.1

【*】+【＃】+【F2】: Address No. 2

【*】+【＃】+【F3】: Address No. 3

【*】+【＃】+【F4】: Address No. 4

RS-232C Interface (Pin Specs)



No.	Function
1	DTR
2	DSR
3	TXD1
4	GND
5	RXD1
6	RS485-A
7	IR OUT
8	RS485-B

Camera **Windows DB-9**

1.DTR	1.CD
2.DSR	2.RXD
3.TXD1	3.TXD
4.GND	4.DTR
5.RXD1	5.GND
6.RS485-A	6.DSR
7.IR OUT	7.RTS
8.RS485-B	8.CTS
	9.RI

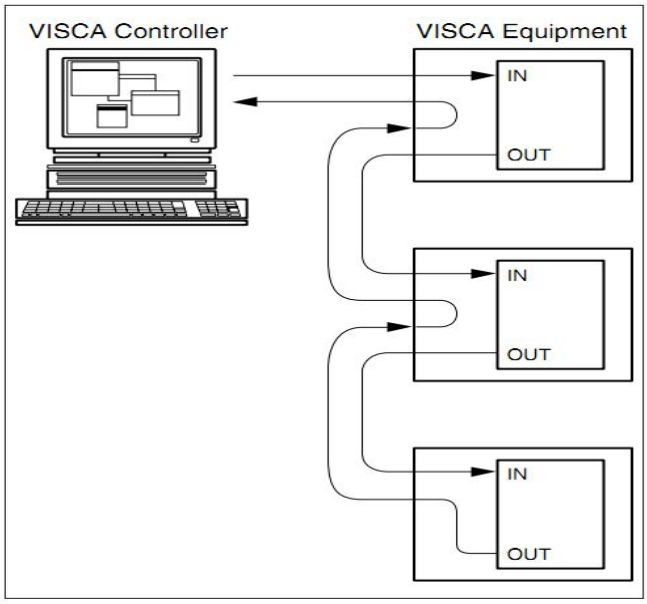
Camera **Mini DIN**

1.DTR	1.DTR
2.DSR	2.DSR
3.TXD	3.TXD
4.GND	4.GND
5.RXD	5.RXD
6.RS485-A	6.GND
7.IR OUT	7.NC
8.RS485-A	8.NC

Camera **RS485**

1.DTR
2.DSR
3.TXD1
4.GND
5.RXD1
6.RS485-A → A
7.IR OUT
8.RS485-B → B
9.GND

VISCA OUT Function



COM Control

In default working mode, the camera is able to be control via RS232C/RS485 interface (VISCA IN). The parameters of the RS232C/RS485 COM as following:

Baud Rate ：2400/4800/9600/115200 Bit/S

Start bit： 1bit;

Data bit: 8bit;

Stop bit: 1bit;

Code: None

Connected to power, the camera runs to left down and back to middle position, with the farthest zoom rate, auto focus mode and auto iris mode. The camera runs into the preset No.0 or No.1 if they were saved. After finish this initialization the users can control the pan/tilt/zoom via COM command.

VISCA Protocol

Pat1 . Camera Return Command

Ack/Completion Message		
	Command Packet	**Note**
ACK	z0 41 FF	Returned when the command is accepted.
Completion	z0 51 FF	Returned when the command has been executed.

z = Camera Address + 8

Error Messages		
	Command Packet	**Note**
Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted
Command Not Executable	z0 61 41 FF	Returned when a command cannot be executed due to current conditions. For example, when commands controlling the focus manually are received during auto focus.

Part 2 Controller Command

Command	Function	Command Packet	Note
AddressSet	Broadcast	88 30 01 FF	Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
CommandCancel		8x 21 FF	
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p = 0(low) - 7(high)
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	One Push AF	8x 01 04 18 01 FF	
CAM_ZoomFocus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	Indoor	8x 01 04 35 01 FF	
	Outdoor	8x 01 04 35 02 FF	
	OnePush	8x 01 04 35 03 FF	
	Manual	8x 01 04 35 05 FF	

CAM_RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_Bgain	Reset	8x 01 04 04 00 FF	Manual Control of B Gain
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright mode(Manual control)
CAM_Shutter	Reset	8x 01 04 0A 00 FF	Shutter Setting
	Up	8x 01 04 0A 02 FF	
	Down	8x 01 04 0A 03 FF	
	Direct	8x 01 04 4A 00 00 0p 0q FF	pq: Shutter Position
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 0C 00 00 0p 0q FF	pq: Gain Positon
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 4D 00 00 0p 0q FF	pq: Bright l Positon
CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation ON/OFF
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	Exposure Compensation Amount Setting
	Up	8x 01 04 0E 02 FF	
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_Aperture	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_Memory	Reset	8x 01 04 3F 00 0p FF	p: Memory Number(=0 to 127) Corresponds to 0 to 9 on the Remote Commander
	Set	8x 01 04 3F 01 0p FF	
	Recall	8x 01 04 3F 02 0p FF	
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Image Flip Horizontal ON/OFF
	Off	8x 01 04 61 03 FF	
CAM_PictureFlip	On	8x 01 04 66 02 FF	Image Flip Vertical ON/OFF

	Off	8x 01 04 66 03 FF	
VideoSystem Set		8x 01 06 35 00 0p FF	P: 0~7 Video format 0:1080P60 1:1080P50 2:1080i60 3:1080i50 4:720P60 5:720P50 6:1080P30 7:1080P25
CAM_IDWrite		8x 01 04 22 0p 0q 0r 0s FF	pqrs: Camera ID (=0000 to FFFF)
SYS_Menu	OFF	8x 01 06 06 03 FF	Turn off the menu
IR_Receive	On	8x 01 06 08 02 FF	IR(remote commander)receive ON/OFF
	Off	8x 01 06 08 03 FF	
	On/Off	8x 01 06 08 10 FF	
IR_ReceiveReturn	On	8x 01 7D 01 03 00 00 FF	IR(remote commander)receive message via the VISCA communication ON/OFF
	Off	8x 01 7D 01 13 00 00 FF	
Pan_tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed 0x01 (low speed) to 0x14 (high speed) YYYY: Pan Position(TBD) ZZZZ: Tilt Position(TBD)
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	
	Upleft	8x 01 06 01 VV WW 01 01 FF	
	Upright	8x 01 06 01 VV WW 02 01 FF	
	DownLeft	8x 01 06 01 VV WW 01 02 FF	
	DownRight	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	RelativePosition	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Pan-tiltLimitSet	Set	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W:1 UpRight 0:DownLeft YYYY: Pan Limit Position(TBD) ZZZZ: Tilt Limit Position(TBD)
	Clear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	

Part3 Command Checking

Command	Command packet	Return packet	Note
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off(Standby)
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	Indoor mode
		y0 50 02 FF	Outdoor mode
		y0 50 03 FF	OnePush mode
		y0 50 04 FF	ATW
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual
		y0 50 0A FF	Shutter priority
		y0 50 0B FF	Iris priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_GainPosiInq	8x 09 04 4C FF	y0 50 00 00 0p 0q FF	pq: Gain Position
CAM_ BrightPosiInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModeInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_ApertureInq	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_MemoryInq	8x 09 04 3F FF	y0 50pp FF	pp: Memory number last operated.
SYS_MenuModeInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_LR_ReverseInq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureFlipInq	8x 09 04 66 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: Camera ID
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	

Command	Command packet	Return packet	Note
VideoSystemInq	8x 09 06 23 FF	y0 50 0p FF	P: 0~7 Video format 0:1080P60 1:1080P50 2:1080i60 3:1080i50 4:720P60 5:720P50 6:1080P30 7:1080P25
IR_Receive	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
IR_ReceiveReturn		y0 07 7D 01 04 00 FF	Power ON/OFF
		y0 07 7D 01 04 07 FF	Zoom tele/wide
		y0 07 7D 01 04 38 FF	AF On/Off
		y0 07 7D 01 04 33 FF	CAM_Backlight
		y0 07 7D 01 04 3F FF	CAM_Memory
		y0 07 7D 01 06 01 FF	Pan_tiltDrive
Pan-tiltMaxSpeedInq	8x 09 06 11 FF	y0 50 ww zz FF	ww: Pan Max Speed zz: Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	wwww: Pan Position zzzz: Tilt Position

Note： 【x】 means the camera address you want to control , 【y】=【x + 8】

Pelco-D Protocol

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
Up	0xFF	Address	0x00	0x08	Pan Speed	Tilt Speed	SUM
Down	0xFF	Address	0x00	0x10	Pan Speed	Tilt Speed	SUM
Left	0xFF	Address	0x00	0x04	Pan Speed	Tilt Speed	SUM
Right	0xFF	Address	0x00	0x02	Pan Speed	Tilt Speed	SUM
Upleft	0xFF	Address	0x00	0x0C	Pan Speed	Tilt Speed	SUM
Upright	0xFF	Address	0x00	0x0A	Pan Speed	Tilt Speed	SUM
DownLeft	0xFF	Address	0x00	0x14	Pan Speed	Tilt Speed	SUM
DownRight	0xFF	Address	0x00	0x12	Pan Speed	Tilt Speed	SUM
Zoom In	0xFF	Address	0x00	0x20	0x00	0x00	SUM
Zoom Out	0xFF	Address	0x00	0x40	0x00	0x00	SUM
Focus Far	0xFF	Address	0x00	0x80	0x00	0x00	SUM
Focus Near	0xFF	Address	0x01	0x00	0x00	0x00	SUM
Set Preset	0xFF	Address	0x00	0x03	0x00	Preset ID	SUM
Clear Preset	0xFF	Address	0x00	0x05	0x00	Preset ID	SUM
Call Preset	0xFF	Address	0x00	0x07	0x00	Preset ID	SUM
Query Pan Position	0xFF	Address	0x00	0x51	0x00	0x00	SUM
Query Pan Position Response	0xFF	Address	0x00	0x59	Value High Byte	Value Low Byte	SUM

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
Query Tilt Position	0xFF	Address	0x00	0x53	0x00	0x00	SUM
Query Tilt Position Response	0xFF	Address	0x00	0x5B	Value High Byte	Value Low Byte	SUM
Query Zoom Position	0xFF	Address	0x00	0x55	0x00	0x00	SUM
Query Zoom Position Response	0xFF	Address	0x00	0x5D	Value High Byte	Value Low Byte	SUM

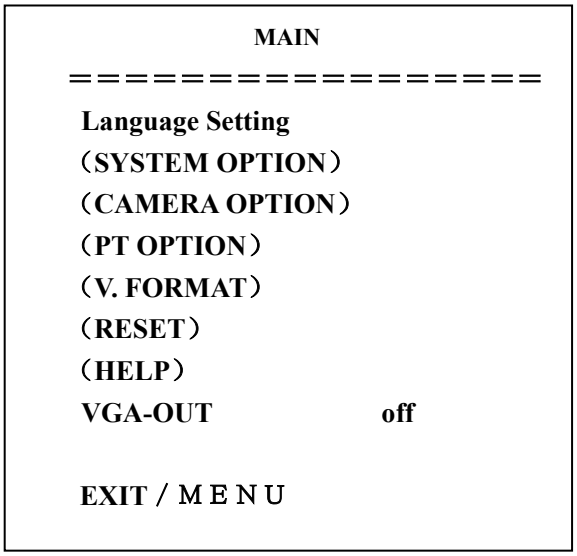
Pelco-P Protocol

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8
Up	0xA0	Address	0x00	0x08	Pan Speed	Tilt Speed	0xAF	XOR
Down	0xA0	Address	0x00	0x10	Pan Speed	Tilt Speed	0xAF	XOR
Left	0xA0	Address	0x00	0x04	Pan Speed	Tilt Speed	0xAF	XOR
Right	0xA0	Address	0x00	0x02	Pan Speed	Tilt Speed	0xAF	XOR
Upleft	0xA0	Address	0x00	0x0C	Pan Speed	Tilt Speed	0xAF	XOR
Upright	0xA0	Address	0x00	0x0A	Pan Speed	Tilt Speed	0xAF	XOR
DownLeft	0xA0	Address	0x00	0x14	Pan Speed	Tilt Speed	0xAF	XOR
DownRight	0xA0	Address	0x00	0x12	Pan Speed	Tilt Speed	0xAF	XOR
Zoom In	0xA0	Address	0x00	0x20	0x00	0x00	0xAF	XOR
Zoom Out	0xA0	Address	0x00	0x40	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x00	0x80	0x00	0x00	0xAF	XOR
Focus Near	0xA0	Address	0x01	0x00	0x00	0x00	0xAF	XOR
Set Preset	0xA0	Address	0x00	0x03	0x00	Preset ID	0xAF	XOR
Clear Preset	0xA0	Address	0x00	0x05	0x00	Preset ID	0xAF	XOR
Call Preset	0xA0	Address	0x00	0x07	0x00	Preset ID	0xAF	XOR
Query Pan Position	0xA0	Address	0x00	0x51	0x00	0x00	0xAF	XOR
Query Pan Position Response	0xA0	Address	0x00	0x59	Value High Byte	Value Low Byte	0xAF	XOR
Query Tilt Position	0xA0	Address	0x00	0x53	0x00	0x00	0xAF	XOR
Query Tilt Position Response	0xA0	Address	0x00	0x5B	Value High Byte	Value Low Byte	0xAF	XOR
Query Zoom Position	0xA0	Address	0x00	0x55	0x00	0x00	0xAF	XOR
Query Zoom Position Response	0xA0	Address	0x00	0x5D	Value High Byte	Value Low Byte	0xAF	XOR

Menu Setting

1. **Main Menu**

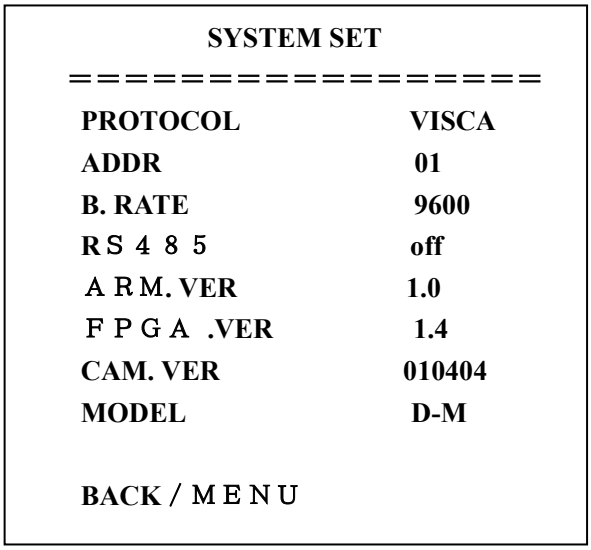
In normal image condition, press "**MENU**" key to display the menu, using scroll arrow to point at or highlight the selected items.



Language Setting: reset state: user Settings
SYSTEM OPTION Setting: Enter to set the Submenu
CAMERA OPTION Setting: Enter to set the Submenu
PT OPTION Setting: Enter to set the Submenu
V. FORMAT Setting: Enter to set the Submenu
RESET: Enter to Submenu
HELP: Enter to Submenu
VGA-OUT: reset state: off
When the video format is P, open/close VGA output; when it is I format, there is no VGA output.
Note: only when VGA is closed, component signals can be output. Default: off

2. SYSTEM OPTION Setting

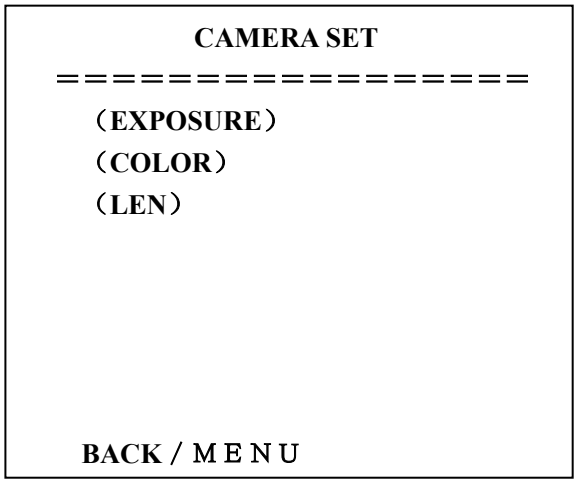
On the Main Menu, move the scroll arrow to SYSTEM OPTION, enter 【**HOME**】key to the setting page.
As shown below



Protocol: reset state: VISCA
Protocol types: VISCA/Pelco-P/Pelco-D
Protocol Address: reset state: 01
VISCA=1~7 Pelco-P/Pelco-D = 1~63
Baud Rate: reset state: 9600
2400/4800/9600/115200
RS485: reset state: off (if you want to use it, turn it on)
ARM software version/FPGA software version/camera version: version information display. Synchronous update when software upgrades
Machine Model: Machine inside identification number S (D-S).M (D-M).C (D-C)

3. CAMERA OPTION Setting

On the Main Menu , move the scroll arrow to CAMERA OPTION, enter【**HOME**】 key to the setting page.
As shown below

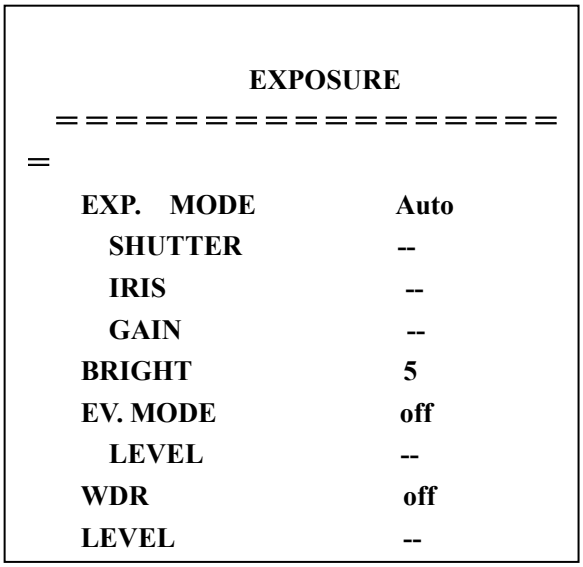


EXPOSURE: Enter to set the Submenu
COLOR: Enter to set the Submenu
LEN: Enter to set the Submenu

3.1 EXPOSURE

Move the scroll arrow to EXPOSURE, enter【**HOME**】 key to the setting page.

As shown below



Exposure Mode: reset state: Auto

Available Settings: Auto, Manual, Shutter, Iris

Shutter: reset state: Default

Available Settings: 1/60, 1/90, 1/100, 1/125, 1/180, 1/250, 1/350, 1/500, 1/725, 1/1000, 1/1500,1/2000, 1/3000, 1/4000, 1/6000, 1/10000（only available in the mode of Manual and Shutter）

Iris: reset state: Default

Available Settings: 0~13（only available in the mode of Manual and Iris）

Gain: reset state: Default

Available Settings: 0~15（only available in the mode of Manual）

Bright: reset state: 5

Available Settings: 0~9

EV: reset state: off

Available Settings: On/Off (only when in non-manual exposure mode, you can use this function)

Level: reset state: Default

Available Settings: -3~3

WDR: reset state: off

Available Settings: On/Off

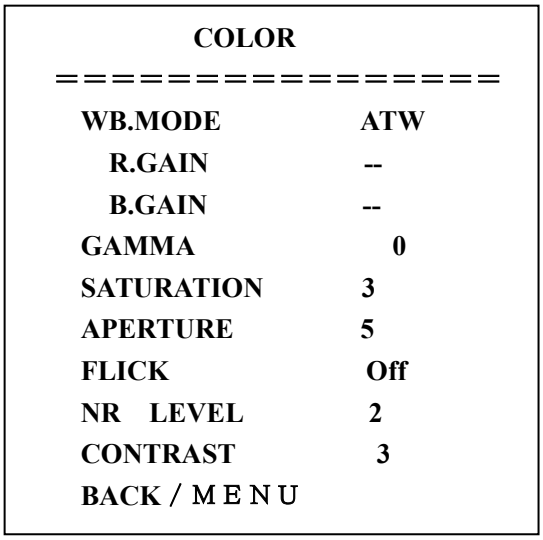
Level: reset state: Default

Available Settings: 0~5

3.2 COLOR

Move the scroll arrow to Color, enter【**HOME**】 key to the setting page.

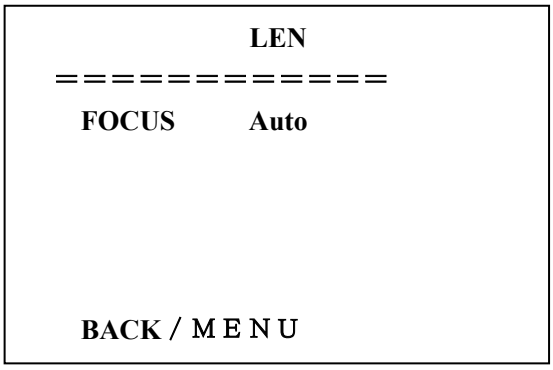
As shown below



WB Mode: reset state: ATW
Available Settings: Auto, Indoor, Outdoor, OnePush, ATW, Manual
Red Gain: reset state: Default
Available Settings:0 ~ 50（only available in the mode of Manual）
Blue Gain: reset state: Default
Available Settings: 0 ~ 50（only available in the mode of Manual）
GAMMA: reset state: 0
Available Settings: 0~3
SATURATION: reset state: 3
Available Settings: 0~9
APERTURE: reset state: 5
Available Settings: 0~9
FLICK: reset state: Off
Available Settings: 50HZ/60HZ/OFF
NR LEVEL (noise reduction): reset state: 2
Available Settings: 0~9
CONTRAST: reset state: 3
Available Settings: 0~9

3.3 Lens

Move the scroll arrow to Len, enter【**HOME**】 key to the setting page.
As shown below

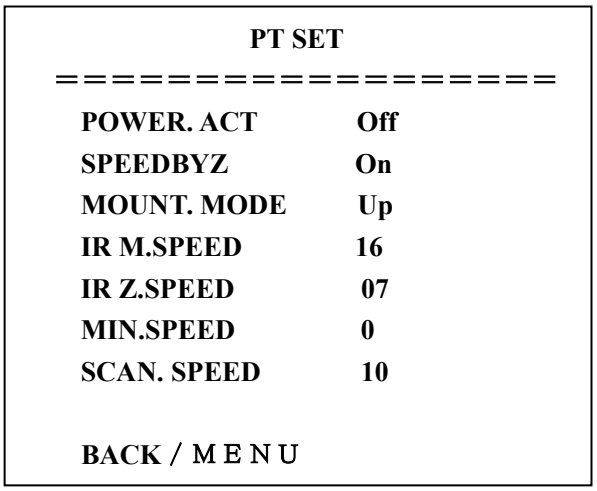


Focus Mode: Auto, Manual, OnePush

4. PT OPTION

Move the scroll arrow to PT OPTION, enter【**HOME**】 key to the setting page.

As shown below



Power on mode: reset state: Off

0/1 (After power on 12 seconds, if you don't operate the camera, it will automatically go to the preset 0/1), Off

SPEEDBYZ: the depth of field proportion: reset state: On

Only work on remote control, On (The camera zoom gets bigger, rotational speed slower), Off

MOUNT MODE: reset state: Up

Available Settings: UP, DOWN

IR M.SPEED: The remote control rotational speed: reset state: 16

Available Settings: 5~24

IR Z.SPEED: The remote control zoom speed: reset state: 07

Available Settings: 1~7

MIN.SPEED: Serial Port minimum speed: reset state: 0

Available Settings: 0~9

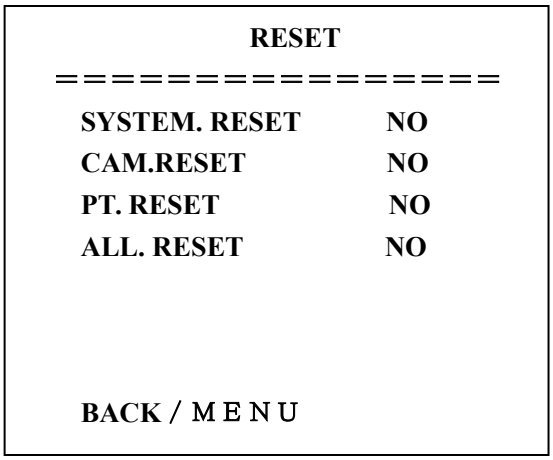
SCAN. SPEED: reset state: 10

Available Settings: 4~15

5. Reset

Move the scroll arrow to Reset, enter【**HOME**】 key to the setting page.

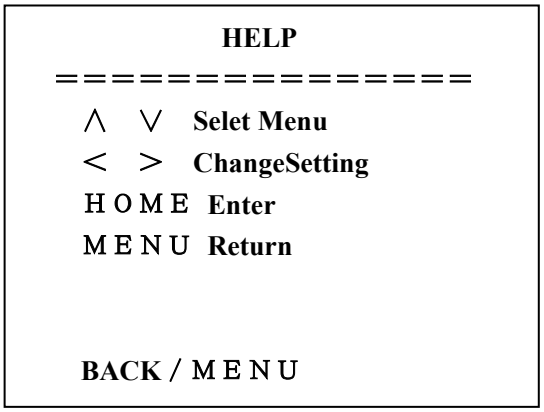
As shown below



SYSTEM RESET: Protocol＝VISCA, Protocol Address＝1, Baud Rate＝9600, RS485＝Off
Camera Reset: Except MOUNT. MODE and Language reset all camera parameters.
PT Reset: POWER. ACT =Off, SPEEDBYZ =On, MOUNT. MODE =Up,
IR M.SPEED =16, IR Z.SPEED =7, Serial port MIN.SPEED =0, SCAN. SPEED =10
ALL RESET: reset the above three parameters

6. Help

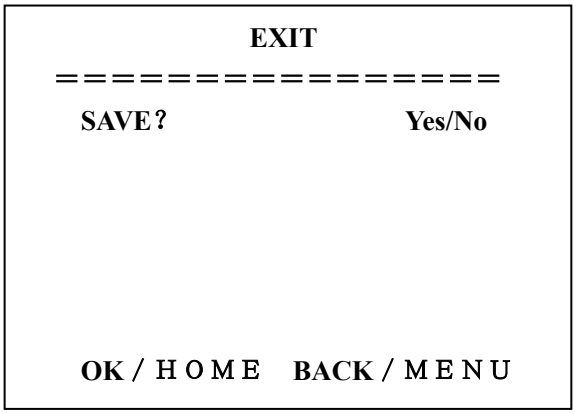
Move the scroll arrow to Help, enter【**HOME**】 key to the setting page.
As shown below



Display menu operation method

7. EXIT

Enter the **MENU** key once again, you will see this interface.



Save: Yes or No **Note:** You need to enter the HOME key to confirm.

Maintenance and Troubleshooting

Camera Maintains

If camera is not used for long time, please turn off power switch, adapter switch and AC plug.
Use soft cloth or tissue to clean the camera cover.
Use soft cloth to clean the lens; Use neuter cleanser if bad smeared. No use strong or corrosive cleanser or corrosive cleanser avoiding scuffing.

Unqualified Application

No shooting extreme light object, such as sunlight, lamplight etc.
No operating in unstable light environment, otherwise image will twinkle
No operating in radio wave with great power environment, such as TV station or Wireless Launcher etc.
Image effective will be not good when the light is not accordant with camera's lux.

Troubleshooting

Image

No image
1, Check whether the power cord, voltage is OK, power indicator light is ON.
2, Turn off the power supply to check whether the camera can auto configure.
3, Check the dial switch in bottom and make sure the two dial position are all on OFF.
4, Check video and TV wire is connected correctly.

Abnormal display of image
Check the video connecting wires is well and other connecting sockets and camera flat wires are well.

The camera can only works at one focus, other position can not be focused.
Change the position to see if this phenomenon still exists. If yes, it may be caused by Camera control drive focus control system trouble.

Image dithering when at Maximum Zoom
1. Check whether camera is fixed correctly.
2. If there is vibrative mechanical object.

Remote Controller

1. Change the battery
2. Check the camera operation mode is right.

Terminal
1. Check the camera operation mode is right.
2. Check control wire is connected correctly.